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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			EXAMINER DEAN, RAYMOND S	
			ART UNIT	PAPER NUMBER
			2684	

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/863,164

Applicant(s)

LEVONAS ET AL.

Examiner

Raymond S Dean

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 - 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 3, 6 - 10, 12, 14 - 18, 20, and 22 - 24 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 11, 13, 19 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 –2, 9, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by McGhee et al. (US 6,658,049 B1).

Regarding Claim 1, McGhee teaches a cancellation system for providing cancellation of interference in a repeater (Column 1 lines 65 – 67, Column 2 lines 1 – 17), located between a first endpoint and a second endpoint (Column 1 lines 58 – 63, since the data is transmitted downstream to a home, which is a second endpoint, there is an entity from which said data is transmitted, which is the first endpoint) comprising: an echo canceller for canceling echo within said system (Column 2 lines 8 – 10, the DSP is the echo canceller); a repeater canceller logically connected to said echo canceller, wherein said repeater canceller cancels coupled signals within said system (Column 2 lines 13 – 17, Column 2 lines 63 – 65, one DSP or two DSPs can be used to cancel the cross talk or coupled signals), wherein said repeater canceller cancels

coupled signals by using a data signal transmitted from said second end point to said first endpoint (Figure 2, Column 3 lines 4 – 8, the data signal is the replica of the transmitted signal, Figure 2 shows that the repeater is a two way or bi-directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint); and a bulk delay device that provides a delay to said data signal prior to said data signal being received by said repeater canceller (Column 3 lines 4 – 8, the DSP delays the replica signal before it uses it to eliminate the cross talk).

Regarding Claim 2, McGhee teaches a cancellation system for providing cancellation of interference in a repeater, located between a first endpoint and a second endpoint (Column 1 lines 58 – 63, Column 1 lines 65 – 67, Column 2 lines 1 – 17, since the data is transmitted downstream to a home, which is a second endpoint, there is an entity from which said data is transmitted, which is the first endpoint), comprising: an echo canceller for canceling echo within said system (Column 2 lines 8 – 10, the DSP is the echo canceller); and a repeater canceller logically connected to said echo canceller, wherein said repeater canceller cancels coupled signals within said system (Column 2 lines 13 – 17, Column 2 lines 63 – 65, one DSP or two DSPs can be used to cancel the cross talk or coupled signals).

Regarding Claim 6, McGhee teaches all of the claimed limitations recited in Claim 2. McGhee further teaches a repeater canceller that cancels coupled signals by using a reference signal, wherein said reference signal is a data signal transmitted from said second endpoint to said first endpoint (Figure 2, Column 3 lines 4 – 8, the data

signal is the replica of the transmitted signal, Figure 2 shows that the repeater is a two way or bi-directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint).

Regarding Claim 8, McGhee teaches all of the claimed limitations recited in Claim 2. McGhee further teaches a bulk delay device, wherein said bulk delay device provides a delay to a data signal being transmitted via said system before said data signal is transmitted to said repeater canceller (Column 3 lines 4 – 8, the DSP delays the replica signal before it uses it to eliminate the cross talk).

Regarding Claim 9, McGhee teaches a method of canceling interference in a repeater located between a first endpoint and a second endpoint (Column 1 lines 58 – 63, Column 1 lines 65 – 67, Column 2 lines 1 – 17, since the data is transmitted downstream to a home, which is a second endpoint, there is an entity from which said data is transmitted, which is the first endpoint), comprising the steps of: amplifying a data signal received from said first end point in accordance with an amount of power required to drive said signal to said second endpoint (Column 2 lines 1 – 17); removing local echo from said amplified data signal (Column 2 lines 8 – 10, the DSP is the echo canceller); removing coupled signals introduced by said repeater; and transmitting said data signal to said second endpoint (Column 2 lines 1 – 17, Column 2 lines 63 – 65, one DSP or two DSPs can be used to cancel the cross talk or coupled signals).

Regarding Claim 10, McGhee teaches all of the claimed limitations recited in Claim 9. McGhee further teaches converting said amplified signal from an analog signal to a digital signal prior to said step of removing local echo (Column 2 lines 8 – 10, the

signal is in digital form), and converting said amplified signal from a digital signal to an analog signal after said step of removing coupled signals introduced by said repeater (Column 3 lines 4 – 8, the DSP eliminates the cross talk, said DSP can only perform operations on digital signals thus the elimination of said cross talk will be done in the digital realm before conversion to analog).

Regarding Claim 14, McGhee teaches all of the claimed limitations recited in Claim 9. McGhee further teaches a removing of coupled signals that is performed by using a reference signal, wherein said reference signal is a data signal transmitted from said second endpoint to said first endpoint (Figure 2, Column 3 lines 4 – 8, the data signal is the replica of the transmitted signal, Figure 2 shows that the repeater is a two way or bi-directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint).

Regarding Claim 16, McGhee teaches all of the claimed limitations recited in Claim 9. McGhee further teaches delaying said amplified signal after said step of removing local echo and prior to said step of removing said coupled signals (Figure 1, Column 2 lines 4 – 17, Column 3 lines 4 – 8, the echo cancellation is done before the transmitted signal exits the second DSP (22), a replica of said transmitted signal is created after said signal is transmitted from the second DSP (22) thus leading to the delaying of said replica, which leads to the removing of the cross talk).

Regarding Claim 17, McGhee teaches a system for providing cancellation of interference in a repeater, located between a first endpoint and a second endpoint (Column 1 lines 58 – 63, Column 1 lines 65 – 67, Column 2 lines 1 – 17, since the data

is transmitted downstream to a home, which is a second endpoint, there is an entity from which said data is transmitted, which is the first endpoint), comprising: means for amplifying a data signal received from said first end point in accordance with an amount of power required to drive said signal to said second endpoint (Column 2 lines 1 – 17); means for removing local echo from said amplified data signal (Column 2 lines 8 – 10, the DSP is the echo canceller); means for removing coupled signals introduced by said repeater; and means for transmitting said data signal to said second endpoint (Column 2 lines 1 – 17, Column 2 lines 63 – 65, one DSP or two DSPs can be used to cancel the cross talk or coupled signals).

Regarding Claim 18, McGhee teaches all of the claimed limitations recited in Claim 17. McGhee further teaches a means for converting said amplified signal from an analog signal to a digital signal prior to removing local echo (Column 2 lines 8 – 10, the signal is in digital form), and a means for converting said amplified signal from a digital signal to an analog signal after removing coupled signals introduced by said repeater (Column 3 lines 4 – 8, the DSP eliminates the cross talk, said DSP can only perform operations on digital signals thus the elimination of said cross talk will be done in the digital realm before conversion to analog).

Regarding Claim 22, McGhee teaches all of the claimed limitations recited in Claim 17. McGhee further teaches said means for removing coupled signals that uses a reference signal, wherein said reference signal is a data signal transmitted from said second endpoint to said first endpoint (Figure 2, Column 3 lines 4 – 8, the data signal is the replica of the transmitted signal, Figure 2 shows that the repeater is a two way or bi-

directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint).

Regarding Claim 24, McGhee teaches all of the claimed limitations recited in Claim 17. McGhee further teaches a means for delaying said amplified signal after removing local echo and prior to removing said coupled signals (Figure 1, Column 2 lines 4 – 17, Column 3 lines 4 – 8, the echo cancellation is done before the transmitted signal exits the second DSP (22), a replica of said transmitted signal is created after said signal is transmitted from the second DSP (22) thus leading to the delaying of said replica, which leads to the removing of the cross talk).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 12, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGhee et al. (US 6,658,049 B1) in view of Erreygers (US 6,236,664 B1).

Regarding Claim 3, McGhee teaches all of the claimed limitations recited in Claim 2. McGhee does not specifically teach a first endpoint that is a central office and a second endpoint that is a customer premise.



Erreygers teaches a first endpoint that is a central office and a second endpoint that is a customer premise (Figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the central office and customer premise taught in Erreygers in the DSL transmission system of McGhee for the purpose of adequately providing broadband services to the home.

Regarding Claim 12, McGhee teaches all of the claimed limitations recited in Claim 9. McGhee does not specifically teach a first endpoint that is a central office and a second endpoint that is a customer premise.

Erreygers teaches a first endpoint that is a central office and a second endpoint that is a customer premise (Figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the central office and customer premise taught in Erreygers in the DSL transmission system of McGhee for the purpose of adequately providing broadband services to the home.

Regarding Claim 20, McGhee teaches all of the claimed limitations recited in Claim 17. McGhee does not specifically teach a first endpoint that is a central office and a second endpoint that is a customer premise.

Erreygers teaches a first endpoint that is a central office and a second endpoint that is a customer premise (Figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the central office and customer premise taught in Erreygers

in the DSL transmission system of McGhee for the purpose of adequately providing broadband services to the home.

3. Claims 7, 15, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGhee et al. (US 6,658,049 B1) in view of Watkinson (US 2002/0191552 A1).

Regarding Claim 7, McGhee teaches all of the claimed limitations recited in Claim 6. McGhee further teaches a data signal derived from a second repeater canceller resulting from data transmission from said second endpoint to said first endpoint (Figure 2, Column 2 lines 63 – 65, Column 3 lines 4 – 8, both DSPs can be used to cancel the cross talk thus there can be two repeater cancellers, the replica signal is created from monitoring the signal transmitted from the second DSP (22), Figure 2 shows that the repeater is a two way or bi-directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint).

McGhee does not specifically teach determining a series of proper coefficients for use in minimizing coupled signals.

Watkinson teaches determining a series of proper coefficients for use in minimizing coupled signals (Sections 0036 – 0038).

It would have been obvious to one of ordinary skill in the art to use the method of determining a series of proper coefficients for use in minimizing coupled signals taught in Watkinson in the DSL transmission system such that the cross talk that is a

characteristic of such said transmission system is eliminated thus enabling the customer to receive reliable broadband services.

Regarding Claim 15, McGhee teaches all of the claimed limitations recited in Claim 14. McGhee further teaches a data signal derived from a second repeater canceller resulting from data transmission from said second endpoint to said first endpoint (Figure 2, Column 2 lines 63 – 65, Column 3 lines 4 – 8, both DSPs can be used to cancel the cross talk thus there can be two repeater cancellers, the replica signal is created from monitoring the signal transmitted from the second DSP (22), Figure 2 shows that the repeater is a two way or bi-directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint).

McGhee does not specifically teach determining a series of proper coefficients for use in minimizing coupled signals.

Watkinson teaches determining a series of proper coefficients for use in minimizing coupled signals (Sections 0036 – 0038).

It would have been obvious to one of ordinary skill in the art to use the method of determining a series of proper coefficients for use in minimizing coupled signals taught in Watkinson in the DSL transmission system such that the cross talk that is a characteristic of such said transmission system is eliminated thus enabling the customer to receive reliable broadband services.

Regarding Claim 23, McGhee teaches all of the claimed limitations recited in Claim 22. McGhee further teaches a data signal derived from a second repeater

canceller resulting from data transmission from said second endpoint to said first endpoint (Figure 2, Column 2 lines 63 – 65, Column 3 lines 4 – 8, both DSPs can be used to cancel the cross talk thus there can be two repeater cancellers, the replica signal is created from monitoring the signal transmitted from the second DSP (22), Figure 2 shows that the repeater is a two way or bi-directional repeater which means that said transmitted signal can be the signal transmitted from the second endpoint to the first endpoint).

McGhee does not specifically teach determining a series of proper coefficients for use in minimizing coupled signals.

Watkinson teaches determining a series of proper coefficients for use in minimizing coupled signals (Sections 0036 – 0038).

It would have been obvious to one of ordinary skill in the art to use the method of determining a series of proper coefficients for use in minimizing coupled signals taught in Watkinson in the DSL transmission system such that the cross talk that is a characteristic of such said transmission system is eliminated thus enabling the customer to receive reliable broadband services.

***Allowable Subject Matter***

4. Claims 4, 5, 11, 13, 19, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding Claims 4, 11, and 19, McGhee teaches a repeater that provides signal continuity from the first endpoint to the second endpoint and eliminates the coupled signals or cross talk but the prior art of record fails to specifically show a tone through capacitor located within said repeater that ensures said signal continuity.

Regarding Claims 5, 13, and 21, It is well known in the art that the repeaters of a transmission system comprising said repeaters are powered so that they can operate properly but the prior art of record fails to specifically show a switch that is located in one of said repeaters for the purposes of providing downstream power to a second repeater located between said first endpoint and said second endpoint.

### ***Conclusion***

5. Any inquiry concerning this communication should be directed to Raymond S. Dean at telephone number (703) 305-8998.

If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung, can be reached at (703) 308-7745. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology center 2600 only)

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Hand – delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



  
NAY MAUNG  
SUPERVISORY PATENT EXAMINER